RANGE EXTENSION AND BIOLOGY OF *ENDOMYCHOBIUS FLAVIPES* (HYMENOPTERA: PTEROMALIDAE)[1,2]

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ABSTRACT: A new distribution from Arkansas is reported for *Endomychobius flavipes*. *E. flavipes* parasites were reared from host larvae *Endomychus biguttatus* from collections made during the spring of 1986. A total of 20 adult wasps emerged from three beetle prepupae.

While pursuing a survey and rearing study of mycophagous Coleoptera during 1986-87, we reared the parasitic wasp *Endomychobius flavipes* (Ashmead) (Fig. 1) from larvae of the fungus beetle *Endomychus biguttatus* (Say) (Coleoptera: Endomychidae). Ashmead (1896) described *E. flavipes* from one male and six female adult wasps reared from the "supposed larva" of *E. biguttatus*. Ashmead's specimens were from the Washington, D.C., area and had been given to him by Mr. E.A. Schwarz. Ashmead included no other information on the biology of the parasite or the beetle. Our search of the literature revealed no additional information on the biology or distribution of *E. flavipes*.

The Arkansas specimens of *E. biguttatus* from which *E. flavipes* were reared were collected at Lake Wedington, 12 miles west of Fayetteville (Washington County) on May 5 and 13, 1986. Additional *E. biguttatus* larvae and adults were collected from early May through June 3, 1986 from Lake Wedington (Washington County), Cove Lake and Mt. Magazine (both in Logan Co.), Arkansas. After an apparent hiatus during the summer months, beetle larvae and adults were collected from October 4, 1986, through March 5, 1987 from Lake Wedington and Markham Hill, Fayetteville, Arkansas. But only five of the six *E. biguttatuss* larvae collected on May 5 and 13 produced *E. flavipes*.

The *E. biguttatus* larvae were collected while they fed on the hymenium or gill layers of the common split-gill fungus, *Schizophyllum commune* (Fr.). This fungus is a tough basidiomycete that occurs on trees and branches throughout the year. It has a double row of ridges or gills that are infolded under dry conditions and exposed for spore release when moist conditions prevail.

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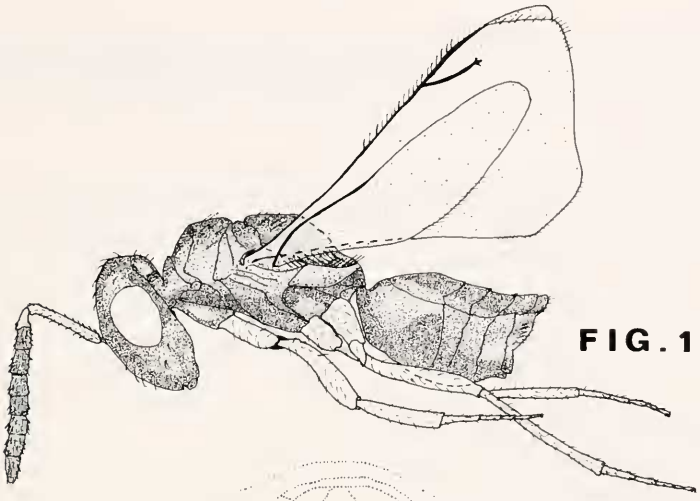

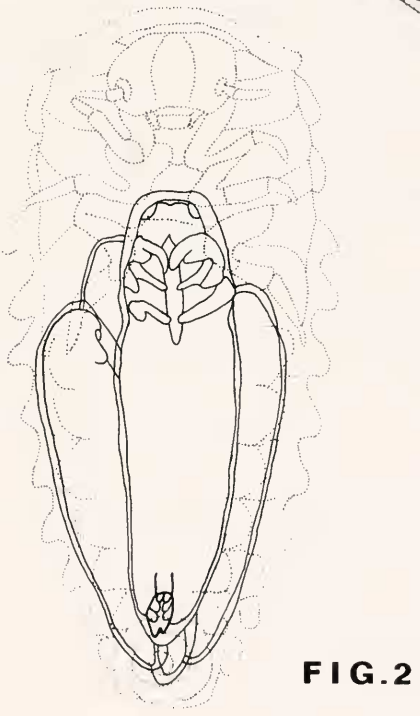

Fig. 1. *Endomychobius flavipes,* adult, lateral view

Fig. 2. *Endomychus biguttatus* beetle prepupa with four *Endomychobius flavipes* pupae inside.

Early instar *E. biguttatus* and *S. commune* fungi were brought to an open-air insectary and placed in mason jars filled with 4 to 6 cm of moist, sterile sawdust. Organdy cloth was placed over the jar mouths, and the jars were checked periodically for emergence of adult beetles and parasitic Hymenoptera.

Prepupae of *E. biguttatus* dropped to the surface of the sawdust layer in the jar and did not bury themselves in the substrate. Non-parasitized prepupae shed exuvia to pupate, and parasitized prepupae turned dark brown and lay motionless on the sawdust. Upon autopsy of two late instar *E. biguttatus* larvae, one contained 4 pupae and the other 6 sub-adult *E. flavipes* collected May 5 and May 16, respectively. All of the parasites were in parallel alignment to the larval body axis with their heads directed anteriorly (Fig. 2). Adult wasps that were allowed to mature emerged from one or two holes that had been chewed at a random position in the *E. biguttatus* prepupal case.

From field collections of May 5 and 13 one adult endomychid beetle emerged June 14, 31 days after collection. *Endomychobius flavipes* adults emerged on three different days from the remaining three separate endomychid prepupae: May 25 - 6, June 1-7, June 11-7. Emergence occurred 20 to 28 days after collection of the endomychid beetle larvae. The number of parasites per prepupa ranged from 4 to 7. Of the 19 adult wasps captured (one escaped), there was a 5:14 male to female sex ratio. The mean length of the males and females was 1.27 mm and 1.86 mm, respectively. These lengths are substantially larger than the .56mm male length and the 1.0mm female length reported by Ashmead (1896).

The rarity of *E. flavipes* is probably an artifact due to the lack of rearing studies. Because its host *E. biguttatus* occurs over much of eastern North America (White 1983), one might assume that *E. flavipes* is also present in this same area.

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